



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/664,345	09/17/2003	John P. Healy	GP-302959	4147

7590 06/21/2005

CARY W. BROOKS
General Motors Corporation
Legal Staff, Mail Code 482-C23-B21
P.O. Box 300
Detroit, MI 48265-3000

EXAMINER

DOVE, TRACY MAE

ART UNIT	PAPER NUMBER
----------	--------------

1745

DATE MAILED: 06/21/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/664,345

Applicant(s)

HEALY ET AL.

Examiner

Tracy Dove

Art Unit

1745

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 17 September 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 9/17/03.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Information Disclosure Statement

The information disclosure statement (IDS) submitted on 9/17/03 has been considered by the examiner.

Claim Objections

Claim 5 is objected to because of the following informalities: the claim recites “wherein the surface area wherein the surface areas”, which should be “wherein the surface areas”. Appropriate correction is required.

Claim 12 is objected to because of the following informalities: the claim recites “provided to said second diffusion layer”, which is confusing. Examiner suggests this limitations be deleted from the claim. Appropriate correction is required.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-6, 12, 19 and 20 are rejected under 35 U.S.C. 102(b) as being anticipated by Matlock et al., US 6,261,711 B1.

Matlock teaches a sealing system for a fuel cell. Figure 7 shows a fuel cell comprising an anode catalyst layer 308, a cathode catalyst layer 308', an electrolyte layer 306, an anode diffusion layer 312, a cathode diffusion layer 312', an anode flow plate 200, a cathode flow plate 200' and an insulating gasket seal 199. As shown in Figure 7, the edges of the cathode catalyst

Art Unit: 1745

layer 308' are closer than the edges of the anode catalyst layer 308 to the edges of the electrolyte layer 306. The membrane may comprise NafionTM. The anode catalyst layer has a surface area, in contact with the electrolyte, that is less than a surface area, in contact with the electrolyte, of the cathode catalyst layer. As shown in Figure 7, the anode catalyst layer 308 is sized by gasket 199 and cathode catalyst layer 308' is sized by gasket 110. Note both layer 312 and layer 200 diffuse gas to the anode catalyst layer 308. The MEA has a thickness of 0.002 inches (~50 µm) (5:42-47 and Example 1).

Thus the claims are anticipated.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 7-11, 13 and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Matlock et al., US 6,261,711 B1.

Matlock teaches a sealing system for a fuel cell. Figure 7 shows a fuel cell comprising an anode catalyst layer 308, a cathode catalyst layer 308', an electrolyte layer 306, an anode diffusion layer 312, a cathode diffusion layer 312', an anode flow plate 200, a cathode flow plate 200' and an insulating gasket seal 199. As shown in Figure 7, the edges of the cathode catalyst layer 308' are closer than the edges of the anode catalyst layer 308 to the edges of the electrolyte layer 306. The membrane may comprise NafionTM. The anode catalyst layer has a surface area, in contact with the electrolyte, that is less than a surface area, in contact with the electrolyte, of

Art Unit: 1745

the cathode catalyst layer. As shown in Figure 7, the anode catalyst layer 308 is sized by gasket 199 and cathode catalyst layer 308' is sized by gasket 110. Note both layer 312 and layer 200 diffuse gas to the anode catalyst layer 308. The MEA has a thickness of 0.002 inches (~50 μm) (5:42-47 and Example 1).

Matlock does not explicitly teach the surface area or thickness values of the anode catalyst layer and/or the cathode catalyst layer. Matlock does not explicitly teach the spacing between the edges of the cathode catalyst layer and the electrolyte layer edges or the spacing between the edges of the anode catalyst layer and the electrolyte layer edges.

However, the invention as a whole would have been obvious to one having ordinary skill in the art at the time the invention was made because one of skill would have known that the area/thickness of the catalyst layers, in contact with the electrolyte, could have been varied depending on the desired size (power output) of the fuel cell. Furthermore, the courts have held that where the only difference between the prior art and the claimed invention was a recitation of relative dimensions (surface area, thickness) of the claimed device and a device having the claimed relative dimensions would not perform differently than the prior art device, the claimed device was not patentably distinct from the prior art device. See MPEP 2144.04. Claims 7-11, 13 and 14 recite dimensions only of the claimed membrane electrode assembly.

*

Claims 15-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Matlock et al., US 6,261,711 B1 in view of Benz et al., US 6,408,966 B1.

Matlock teaches a sealing system for a fuel cell. Figure 7 shows a fuel cell comprising an anode catalyst layer 308, a cathode catalyst layer 308', an electrolyte layer 306, an anode

Art Unit: 1745

diffusion layer 312, a cathode diffusion layer 312', an anode flow plate 200, a cathode flow plate 200' and an insulating gasket seal 199. As shown in Figure 7, the edges of the cathode catalyst layer 308' are closer than the edges of the anode catalyst layer 308 to the edges of the electrolyte layer 306. The membrane may comprise NafionTM. The anode catalyst layer has a surface area, in contact with the electrolyte, that is less than a surface area, in contact with the electrolyte, of the cathode catalyst layer. As shown in Figure 7, the anode catalyst layer 308 is sized by gasket 199 and cathode catalyst layer 308' is sized by gasket 110. Note both layer 312 and layer 200 diffuse gas to the anode catalyst layer 308. The MEA has a thickness of 0.002 inches (~50 μm) (5:42-47 and Example 1).

Matlock does not explicitly state the fuel cell powers a drive system of an automobile.

However, Benz teaches a fuel cell vehicle (automobile) comprising an electric drive system and a fuel cell system for providing electric energy for the drive system (abstract). A high-hydrogen reformat gas is used as the anode reactant. The hydrogen reformat gas is formed by a reactor unit (fuel processor). The figure shows a fuel cell vehicle comprising the reactor unit 9, fuel storage 11, drive system 36, system control 35 (energy conversion for receiving and regulating electricity) and fuel cell 1. System control 35 serves as an interface between the fuel cell and the drive system. Electric motors are fed by the electric energy which is generated by the fuel cell and fed from the fuel cell to the system control and from there to the drive system (5:4-18).

Therefore, the invention as a whole would have been obvious to one having ordinary skill in the art at the time the invention was made because it is well known that fuel cell are used to

Art Unit: 1745

power an automobile. Both Benz and Matlock teach polymer electrolyte fuel cells. Thus, one of skill would have been motivated to use the fuel cell of Matlock for the fuel cell vehicle of Benz.

Regarding claim 18, the courts have held that where the only difference between the prior art and the claimed invention was a recitation of relative dimensions (surface area, thickness) of the claimed device and a device having the claimed relative dimensions would not perform differently than the prior art device, the claimed device was not patentably distinct from the prior art device. See MPEP 2144.04. Claim 18 recites dimensions only of the claimed membrane electrode assembly.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tracy Dove whose telephone number is 571-272-1285. The examiner can normally be reached on Monday-Thursday (9:00-7:30).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Pat Ryan can be reached on 571-272-1292. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

June 16, 2005



TRACY DOVE
PRIMARY EXAMINER